INITIAL REGULATORY FLEXIBILITY ANALYSIS
THREATENED STEELHEAD

I. Introduction and Executive Summary

When an agency proposes regulations, the Regulatory Flexibility Act (RFA) (5 U.S.C. § 601-612) requires the agency to prepare and make available for public comment an initial regulatory flexibility analysis (IRFA) that describes the impact of the proposed rule on small businesses, nonprofit enterprises, local governments, and other small entities. The IRFA is to aid the agency in considering all reasonable regulatory alternatives that would minimize the economic impact on affected small entities.

This analysis addresses proposed regulations associated with the following seven steelhead populations- Environmentally Significant Units (ESUs) listed as "threatened" under the provisions of the Endangered Species Act:

Snake River (SR)
Middle Columbia River (MCR)
Lower Columbia River (LCR)
Upper Willamette River (UWR)
Central California Coast (CCC)
California Central Valley (CCV)
South Central California Coast (SCCC)

Under § 4(d) of the Endangered Species Act (ESA), the Secretary of Commerce (Secretary) is required to adopt such regulations as he deems necessary and advisable for the conservation of species listed as threatened. For the above seven threatened steelhead ESUs, NMFS proposes to apply the prohibitions enumerated in § 9(a) of the ESA. These prohibitions would apply generally to activities affecting listed steelhead in those ESUs, but not to specified categories of activities that contribute to conserving listed steelhead or are governed by a program that limits impacts on listed steelhead to an extent that makes additional protection through federal regulation unnecessary.

The number of entities potentially affected by these regulations is substantial and the geographic range of these regulations crosses four states. Activities potentially affecting steelhead are those associated with agriculture, forestry, fishing, mining, heavy construction, highway and street construction, logging, wood and paper mills, water transportation, electric services, and other industries. As many of these activities involve local, state, and Federal oversight, including permitting, governmental activities associated with the smallest towns or planning units to the largest cities will also be impacted. The activities of some nonprofit organizations will also be affected by these regulations.

The geographic scope of the steelhead ESUs, and thus, the scope of proposed regulations can be approximated through the following list of counties:

Washington:	Franklin, Garfield, Whitman, Asotin, Lewis, Cowlitz, Clark, Skamania, Klickitat, Yakima, Kittias, Benton, Walla Walla, Columbia
Oregon:	Union, Wallowa, Columbia, Multnomah, Hood River, Umatilla, Grant, Wheeler, Morrow, Gilliam, Sherman, Jefferson, Wasco, Washington, Clackamas, Marion, Linn, Benton, Polk, Yamhill
California:	Mendocino, Sonoma, Marin, Napa, Solano, Contra Costa, San Mateo, Alameda, Santa Cruz, San Francisco, Monterey, San Luis Obispo, Santa Clara, San Benito, Shasta, Tehama, Plumas, Glenn, Butte, Sierra, Colusa, Yuba, Nevada, Sutter, Placer, Yolo, El Dorado, Sacramento, Amador, Calaveras, San Joaquin, Stanislaus, Tuolumne, Mariposa, Merced, Madera, Fresno, Kings, Tulare, Kearn.
Idaho:	Latah, Nez Perce, Lewis, Clearwater, Idaho, Adams, Valley, Lemhi, Custer.

If the proposed rule is not expected to have a significant impact on a substantial number of small entities, the RFA allows an agency to so certify the rule, in lieu of preparing an IRFA. NMFS examined in as much detail as practical the potential impact of the regulation on a sector by sector basis. Unavailable or inadequate data leaves a high degree of uncertainty surrounding both the numbers of entities likely to be affected, and the characteristics of any impacts on particular entities. The problem is complicated by differences among entities even in the same sector as to the nature and size of their current operations, contiguity to waterways, individual strategies for dealing with the take prohibitions, etc. Therefore, to ensure a broad consideration of impacts on small entities, NMFS has prepared this IRFA without first making the threshold determination whether this proposed action could be certified as not having a significant economic impact on a substantial number of small entities. Of course, NMFS might determine such certification to be appropriate if established by information received in the public comment period.

There are no record-keeping or reporting requirements associated with the take prohibitions, and therefore it is not possible to simplify or tailor record keeping or reporting to be less burdensome for small entities. However, some programs for which NMFS has found it not necessary to prohibit take involve record keeping and/or reporting to support that continuing determination. NMFS has attempted to minimize any burden associated with programs for which the take prohibitions are not enacted.

In formulating this proposed rule, NMFS considered seven alternative approaches, described in more detail below. NMFS concludes that at the present time there are no legally viable

alternative rules that would have less impact on small entities and still fulfill the agency's obligations to protect listed salmonids. The first four alternatives may result in unnecessary impacts on economic activity of small entities, given NMFS' judgment that a more limited application of those protections would suffice to conserve the species.

If you believe the alternative proposed in this rule will impact your economic activity, please comment on whether there is a preferable alternative (including alternatives not described here) that would meet the statutory requirements of ESA § 4(d). Please describe the impact that alternative would have on your economic activity and why the alternative is preferable.

II. Specific Requirement to Prepare an IRFA

The level of detail and sophistication of the analysis should reflect the significance of the impact on small entities. Under 5 U.S.C., § 603(b) of the RFA, each IRFA is required to address:

- A description of the reasons why action by the agency is being considered;
- A succinct statement of the objectives of, and the legal basis for, the proposed rule;
- A description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply (including a profile of the industry divided into industry segments, if appropriate);
- A description of the projected reporting, record keeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities that will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;
- An identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap or conflict with the proposed rule;
- A description of any significant alternatives to the proposed rule that accomplish the stated objectives of applicable statutes and that would minimize any significant economic impact of the proposed rule on small entities.

III. Reasons For Considering The Proposed Action

Given the threatened biological status of these seven ESUs of threatened steelhead, NMFS finds that the prohibitions for endangered species are generally necessary and advisable for conservation of the species. Therefore NMFS proposes 4(d) rules that would impose the take prohibitions on activities generally, but would not apply the prohibitions to activities found to be adequately protective of the threatened steelhead or otherwise contributing to conservation of the ESUs. The rules do not require any specific actions by non-federal agencies, businesses, organizations, or private individuals. Rather, they will impose on entities the responsibility to review their actions and modify or eliminate those actions that otherwise would lead to "take" of threatened species.

Prohibitions on "take" of individuals apply to a multitude of activities that may injure or kill listed steelhead including harvest, hatchery-related actions, or disturbance of habitat. Harm to steelhead can occur through destruction or modification of habitat (whether or not designated as critical) that significantly impairs essential behaviors, including breeding, feeding, rearing, or migration. The take prohibitions apply only to naturally spawned steelhead and their progeny.

Whether take prohibitions or other protective regulations are necessary or advisable is in large part dependent upon the biological status of the species and potential impacts of various activities on the species. The NMFS has concluded that threatened steelhead are at risk of extinction primarily because their populations have been reduced by a variety of human activities. West Coast steelhead populations have been depleted by both the obvious type of take involved in harvest, as well as take resulting from past and ongoing destruction of their freshwater and estuarine habitats and from past hatchery practices. Therefore it is necessary and advisable in most circumstances to prohibit take of these threatened ESUs, in order to provide for their conservation.

Although state, local and other programs may not be specifically for the conservation of threatened salmonids, many are being modified to provide greater protection to listed salmonids. NMFS concludes that where a program provides sufficient conservation for listed salmonids, it is neither necessary nor advisable to apply take prohibitions to activities governed by those programs. In those circumstances, additional Federal ESA regulation through the take prohibitions is unnecessary because it will not enhance the conservation of the listed ESUs. NMFS also finds that Federal regulation in such circumstances is not the most beneficial use of limited government resources, which are better spent on enforcement where non-federal conservation measures have not been undertaken.

IV. Objectives and Legal Basis of Proposed Rule

The purpose of the ESA is to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species..." Under the ESA, a 'threatened' species is one that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. To conserve a species is to use all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to the ESA are no longer necessary. When a species is listed, § 7 of the ESA requires Federal agencies to insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat. Section 7 extends protection only against actions that have some nexus to federal agency action, funding, or permitting.

When a species is listed as endangered, § 9 of the ESA makes it illegal for any person subject to the jurisdiction of the United States to "take" any wildlife species listed as endangered. For the purposes of this law, "take" of a species means to harass, harm, pursue, hunt, shoot, wound, kill, trap, or collect (or to attempt any of these), import or export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. These § 9(a) protections apply by statute only to endangered species, however.

When a species is listed as threatened, § 4(d)[1] of the ESA provides that the Secretary shall issue such regulations as he deems necessary and advisable to provide for the conservation of the species, including any or all of the prohibitions applicable to endangered species under § 9(a). The purpose of this rule is to provide all necessary and advisable protection for threatened steelhead ESUs, by imposing the take prohibitions. As noted above, there are some programs or categories of activities that contribute to conserving listed steelhead or are governed in a manner that limits impacts on listed steelhead to an extent that makes additional protection through federal regulation unnecessary, and for those activities, NMFS is not imposing the take prohibitions.

This 4(d) rule does not require any specific actions by non-federal agencies, businesses, organizations, or private individuals. Rather it is the responsibility of individuals, businesses, agencies, and organizations not to "take" endangered or threatened species, once the take prohibitions are in place. NMFS provides guidance and other support to help state and local agencies develop incentive, regulatory, and enforcement programs that effectively promote restoration of the listed population.

V. Analytical Questions and Information Needs

To aid the reader or commenter in understanding the environmental baseline for considering incremental impacts of the rule, NMFS outlines below questions that bear on an assessment of regulations under the Regulatory Flexibility Act.

1. What are the regulations?
2. What constitutes the universe of entities that need to be in compliance with these regulations?
3. What part of this universe is already in compliance, e.g., activities occurring on federal lands, subject to § 7 consultations, or governed by existing laws and regulations such as the Clean Water Act?
4. Remaining entities are the ones likely to be impacted by the steelhead regulations.
5. What activities are these impacted entities likely to curtail, modify, or undertake to be in compliance with these regulations?
6. How many of these entities are small entities?

[1] 16 U.S.C. § 1533(d) (1994)

7. Are there Federal, state, or local programs that may help mitigate these financial impacts?

The proposed rule is likely to have direct impacts on substantial numbers of entities. However, what is unknown is the ability of these entities to adapt by changing the manner in which they operate or in changing their mix of products. The following examples are provided to indicate how the proposed rule may affect some of the various sectors and to aid public comment. NMFS asks that in commenting on the proposed rule, entities identify any alternative protective regulation that would meet NMFS' statutory responsibilities but have less impact on their economic activity, describe the impact that alternative would have on your economic activity, and describe why the alternative is preferable.

Agriculture: What would this rule mean for a farm growing 160 acres of alfalfa, a commonly grown crop in the Snake River Basin ESU, yielding four tons per acre with a price of alfalfa at $95/ton? Reductions in income could result from reduction in use of pesticides which could affect both yield per acre and quality of product (price), changes in the quantity of and timing of irrigation water, or reductions in acres that could be cropped. Costs of screening irrigation diversions has been estimated to cost from $1,000 to $15,000 for a small farm and, hence, this is another way for a small farm to face increased costs. Are there farming techniques or alternative crops that the farmer could employ to mitigate against this loss of revenue and production?

Forestry: Concern in the forest sector surrounds the riparian buffers that may need protection in order to preserve habitat. (Some of this loss occurs as a result of the listing of the steelhead and not as a result of the 4(d) rule because it occurs on Federal land, or as a result of voluntary forest management habitat preservation measures). Reductions of logging between streams could render the entire area between streams infeasible for logging due to the cost of installing yarding systems for log extraction. How many forest landowners face this type of cost? Do they have alternative uses for the land?

Commercial Fishing: For commercial fishing , NMFS does not anticipate any effects on the commercial fishing industry resulting from the 4(d) rule, though certain practices may require modification.

Small Governments: Small governmental jurisdictions are defined as any government of a district with a population of less than 50,000. Districts may include those servicing irrigation, ports, parks and recreation, sanitation, drainage, soil and water conservation, road assessment, etc. These governmental jurisdictions may be affected in many ways including: additional planning required to modify existing programs, increased construction costs in road building and drainage system construction, losses of recreational revenue in the forms of park entry fees and licensing, increased water management costs, increased need for public education, and increased monitoring and enforcement costs. Water management districts are especially susceptible to impacts because flow alterations may be necessary to aid both spawning and smolt migration. How will this propose rule affect the allocations of water and existing plans? Will new programs for conservation and protection have to undertaken?

VI. Effects of the 4(d) Regulation– Prohibitions and Limitations

Take Prohibitions

Individuals or entities conducting activities that could potentially harm, injure, or kill steelhead and result in violations of this rule should evaluate the likelihood that their particular activity will do so either directly or through alteration of habitat. They may need to alter the activity, obtain an incidental take permit, or otherwise avoid any unauthorized take of listed fish. Some of the activities NMFS believes could "take" listed fish include, but are not limited to:

1. Land-use activities that adversely affect steelhead habitat (e.g., logging, grazing, farming, or road construction particularly when conducted in riparian areas, or in areas susceptible to mass wasting and surface erosion);
2. Destruction or alteration of steelhead habitat (aside from habitat restoration activities), such as removal of large woody debris and "sinker logs" or riparian shade canopy, dredging, discharge of fill material, draining, ditching, diverting, blocking, or altering stream channels or surface or ground water flow;
3. Discharges or dumping of toxic chemicals or other pollutants (e.g., sewage, oil, gasoline) into waters or riparian areas supporting the listed steelhead;
4. Violation of discharge permits;
5. Pesticide applications in violation of Federal restrictions;
6. Interstate and foreign commerce of listed steelhead and import/export of listed steelhead without an ESA permit, unless the fish were harvested pursuant to this rule;
7. Except as provided in the rule, collecting, or handling listed steelhead;
8. Introduction of non-native species likely to prey on listed steelhead or displace them from their habitat;
9. Water withdrawals in areas where important spawning or rearing habitats may be adversely affected, or otherwise altering streamflow when it is likely to impair spawning, migration, or other essential functions;
10. Constructing or maintaining barriers that eliminate or impede a listed species' access to habitat essential for its survival or recovery;
11. Removing, poisoning, or contaminating plants, fish, wildlife, or other biota required by the listed species for feeding, sheltering, or other essential functions;
12. Releasing non-indigenous or artificially propagated individuals into a listed species' habitat;
13. Constructing or operating inadequate fish screens or fish passage facilities at dams or water diversion structures in a listed species habitat;
14. Constructing or using inadequate bridges, roads, or trails on stream banks or unstable hill slopes adjacent or above a listed species' habitat; or
15. Constructing or using inadequate pipes, tanks, or storage devices containing toxic substances, where the release of such a substance is likely to significantly modify or degrade listed species' habitat.

Limits on the Take Prohibitions

As a matter of law, impacts on listed steelhead due to actions in compliance with a permit issued by NMFS pursuant to § 10 of the ESA are not violations of this rule. Section 10 permits may be issued for research activities, enhancement of the species' survival, or to authorize incidental take occurring in the course of an otherwise lawful activity. Likewise federally funded or approved activities for which § 7 consultations have been completed, and which are conducted in accord with all reasonable and prudent measures, terms, and conditions provided by NMFS in a biological opinion and accompanying incidental take statement pursuant to § 7 of the ESA will not constitute violations of this rule. NMFS consults on a broad range of activities conducted, funded or authorized by Federal agencies, including fisheries harvest, hatchery operations, silviculture, grazing, mining, road construction, dam construction and operation, discharge of fill material, stream channelization or diversion.

NMFS has determined that it is neither necessary nor advisable to impose § 9 take prohibitions on certain programs or activities carried out or authorized by state or other governments in the threatened steelhead ESUs, where those activities contribute to conservation of the ESU or are regulated by other entities in a way that is adequately protective of steelhead.

1. Fishery Management Limits on the Take Prohibitions

NMFS believes that recreational fisheries for non-listed steelhead and rainbow trout can have an acceptably limited effect on listed steelhead, as long as state fishery management programs are specifically tailored to protect listed steelhead. Through the proposed rule, NMFS proposes not to impose take prohibitions where states have adequate programs. To qualify for this limit on the take prohibitions a state must have developed a Fishery Management and Evaluation Plan (FMEP) for their respective steelhead and resident species fisheries that adequately limits take of listed steelhead and have entered into a Memorandum of Agreement (MOA) with NMFS to ensure adequate implementation of the FMEP.

NMFS also concludes that carefully designed artificial propagation programs may be consistent with and support protection and conservation of listed steelhead. If a state or federal agency develops a Hatchery and Genetic Management Plan containing specific management measures that adequately limits take of listed steelhead and promote the conservation of the listed ESU, NMFS finds that additional Federal protections through imposition of take prohibitions would be unnecessary for conservation of the listed steelhead.

2. Scientific Research Limits on the Take Prohibitions

In carrying out their fishery management responsibilities in Idaho, Washington, Oregon, and California, the state fishery management agencies conduct or permit a wide range of scientific research activities on various fisheries, including studies on steelhead which occur in the seven listed steelhead ESUs. NMFS finds these activities are vital for improving an understanding of the status and risks facing steelhead and other species in these ESUs, and will provide critical information for assessing the effectiveness of current and future management practices. Therefore the take prohibitions are not imposed on these activities so long as conducted with approval of the respective state in accord with limitations and reporting requirements of the rule.

3. Habitat Restoration Limits on the Take Prohibitions

Certain habitat restoration activities are likely to contribute to conserving steelhead, and NMFS therefore does not propose to impose take prohibitions on such activities so long as they are conducted in accordance with appropriate standards and guidelines. Projects planned and carried out based on at least a watershed-scale analysis and conservation plan, and, where practicable, a sub-basin or basin-scale analysis and plan, are likely to be the most beneficial. The rule therefore provides that § 9(a) take prohibitions will not apply to habitat restoration activities found to be part of, and conducted pursuant to a watershed conservation plan. A state must approve or disapprove watershed conservation plans depending on whether they are formulated in accordance with NMFS-approved state watershed conservation plan guidelines.

This rule also proposes that until approved watershed plans are in place, take prohibitions would not be applied to several habitat restoration activities if carried out in accord with applicable state guidance, and of course with any required reviews or permits. The activities excepted under carefully defined conditions are:

a. Riparian zone planting or fencing
b. Livestock water development off-channel
c. Large wood or boulder placement
d. Correcting road/stream crossings, including culverts, to allow or improve fish passage.
e. Repair, maintenance, or decommissioning of roads in danger of failure.
f. Salmonid carcass placement.

More complex restoration activities such as habitat construction projects or channel alterations require project by project technical review at least until watershed planning is complete. The purpose of this limit on application of the take prohibitions is to enable beneficial habitat restoration activities to continue in the short term until states formulate more comprehensive watershed conservation plan guidelines and plans. After a watershed conservation plan has been approved, only activities conducted pursuant to the plan are within the limit on take prohibitions. If no plan has been approved for a watershed within two years following the effective date of this interim rule, the general § 9(a) take prohibitions of this interim § 4(d) rule apply to individual restoration activities just as to all other habitat-affecting activities.

4. Limit on the Take Prohibitions for Properly Screened Water Diversions

A widely recognized cause of mortality among anadromous fish is operation of water diversions without adequate screening. Juveniles may be sucked or attracted into diversion ditches where they later die from a variety of causes, including stranding. Adult and juvenile migration may be impaired by diversion structures, including push-up dams. Juveniles are often injured and killed through entrainment in pumping facilities or impingement on inadequate screens, where water pressure and mechanical forces are often lethal. Despite long-time recognition of these problems and a multitude of state and Federal approaches to reducing these impacts, large numbers of diversions are not adequately screened and remain a threat, particularly to juvenile salmonids. This rule proposes to recognize those diverters who have provided adequate screening, and encourage others to take that step, by not applying the take prohibitions for those diversions that

are properly screened in accord with NMFS' fish screening criteria. The proposed limit on the take prohibitions applies only to physical impacts on listed fish due to entrainment or similar impacts of the act of diverting. It does not include take that may be caused by instream flow reductions associated with operation of the water diversion facility, nor impacts associated with installation of the stream (dewatering, etc.).

5. Routine Road Maintenance Limit on the Take Prohibitions

The Oregon Department of Transportation (ODOT) is responsible for the extensive existing transportation infrastructure represented by Oregon's state highway system. ODOT maintenance and environmental staff have developed a program that greatly improves protections for listed salmonids with respect to the range of routine maintenance activities, minimizing their impacts on receiving streams. ODOT's program includes its Maintenance of Water Quality and Habitat Guide dated June, 1999 (Guide) and a number of supporting policies and practices. NMFS does not find in necessary or advisable to apply take prohibitions to routine road maintenance work performed consistent with the Guide, because in NMFS' judgement doing so would not increase the level of protection provided for listed steelhead. Activities other than routine maintenance, including new construction, major replacements, or activity for which a Corps of Engineers permit is required, will remain subject to the take prohibitions. Likewise, take prohibitions do apply to any pesticide applications or dust abatement applications associated with road maintenance. Any Oregon city or county desiring that take prohibitions not apply to its routine road maintenance activities must not only commit in writing to apply the measures in the Guide, but also must first enter a memorandum of agreement with NMFS detailing how it will assure adequate training, tracking, and reporting.

6. Portland Parks Integrated Pest Management Limit on the Take Prohibitions

The City of Portland, Oregon, Parks and Recreation (PP&R) operates a diverse system of city parks representing a full spectrum from intensively managed recreation, sport, golf, or garden sites to largely natural, unmanaged parks, including the an extensive, wooded Forest Park. PP&R has been operating and refining an integrated pest management program for 10 years, with a goal of reducing the extent of its use of herbicides and pesticides in park maintenance. As a result of this program, the City has phased out regularly scheduled treatments such as turf spraying to control broadleaf weeds. This has reduced total use of chemical to control broadleaf weeds to less than 15% of its former level. The program's "decision tree" place first priority on prevention of pest (weeds, insects, disease) through policy, planning, and avoidance measures (design and plant selection). Second priority is on cultural and mechanical practices, trapping, and biological controls. Use of biological products, and finally of chemical products, is to be considered last. PP&R's overall program affects only a small proportion of the land base and waterways within Portland, and serves to minimize any impacts on listed salmonids from chemical applications associated with that specific, limited land base.

The PP&R has recently developed special policies to provide extra protections near waterways and wetlands, including a 25 foot buffer zone in which pesticide use is limited to specified products, applied with a hand wand from a backpack sprayer, which utilizes low pressure spray

to minimize drift NMFS concludes that PP&R's program provides adequate protection for listed steelhead with respect to the limited chemical use the program entails. NMFS does not find in necessary or advisable to apply additional Federal protections in the form of take prohibitions to PP&R activities conducted under PP&R's integrated pest management program, because doing so would not increase the level of protection provided for listed steelhead. NMFS therefore does not propose to apply the take prohibitions of this rule to activities within the PP&R program.

7. Limit on the Take Prohibitions for New Urban Density Development

As a general matter, significant new urban scale developments have the potential to degrade steelhead habitat and to injure or kill steelhead through a variety of impacts. Through this proposed rule, NMFS proposes a mechanism whereby jurisdictions can be assured that development authorized within those areas is consistent with ESA requirements and avoids or minimizes the risk of take of listed steelhead.

This rule proposes that NMFS will not apply take prohibitions to new developments governed by and conducted in accord with adequate city ordinances that help conserve anadromous salmonids. Similarly, take prohibitions will not be applied to development consistent with an Urban Reserve Plan that Portland's metropolitan regional government, Metro, has evaluated and approved as in compliance with adequate guidelines. In evaluating adequacy of Metro guidelines or local ordinances NMFS will focus on twelve issues:

a. Siting that avoids sensitive or constrained sites.
b. Avoiding stormwater discharge impacts to water quality and quantity, and to the historic hydrograph characteristics of the watershed.
c. Protection of adequate vegetated riparian buffers along all streams.
d. Avoiding stream crossings by roads wherever possible, and minimizing their impacts.
e. Protecting historic stream meander patterns, flood plains and channel migration zones.
f. Protecting wetlands and surrounding vegetation to maintain wetland functions.
g. Preserving the hydrologic capacity of streams to pass peak flows.
h. Landscaping to reduce need for watering and chemical application.
i. Preventing erosion and sediment run-off during and after construction.
j. Assuring that water supply demands do not impact flows needed for steelhead.
k. Monitoring and maintaining detention basins and similar tools.
l. Providing needed enforcement, funding, monitoring, reporting, and implementation mechanisms.

8. Limit on the Take Prohibitions for Forest Management in Washington

In the State of Washington, discussions among timber industry, tribes, state and federal agencies, and interest groups have led to an April 29, 1999 Forests and Fish Report (FFR) to Governor Locke which provides important improvements in forest practice regulation. It also mandates that all existing forest roads be inventoried for potential impacts on salmonids through culvert inadequacies, erosion, slope failures, and the like, and all needed improvements be completed within 15 years. Because of the substantial detrimental impacts of inadequately sited,

constructed or maintained forest roads on salmonid habitat, this feature of the overall FFR provides a significant conservation benefit for listed ESUs in Washington.

Because of the above features NMFS does not propose to apply § 9 take prohibitions to non-federal forest management activity conducted in the State of Washington in compliance with the FFR and forest practice regulations implemented by the Washington Forest Practices Board that are at least as protective of habitat functions as are the regulatory elements of the FFR. These measures will provide a significant level of protection to listed steelhead and contribute to their conservation. Activity associated with pesticide use or undertaken pursuant to alternate plans is not within this limitation and would remain subject to take prohibitions.

Elements of the FFR that provide protections or conservation benefits for salmonids include:

a. Adequate classification of water bodies and broad availability of that information.
b. Maintenance and upgrade of existing as well as new forest roads.
c. Protection for unstable slopes from increased failure and sedimentation to streams.
d. Measures to achieve properly functioning riparian conditions.
e. Adequate monitoring and adaptive management programs.

VII. Number and Description of Affected Small Entities

Based on the expected effects of the 4(d) rule, the following series of subsections enumerate, to the extent practicable, the number and nature of the "small entities" which comprise the commercial sectors, not-for-profit organizations, and governmental jurisdictions and communities that are likely to be affected by this proposed rule. Taken as a whole, these "entities" define the potentially impacted universe for purposes of the IRFA.

The Small Business Administration (SBA), under the Small Business Size Standards, defines whether a business entity is eligible for government programs and preferences reserved for "small business" concerns. Size standards have been established for types of economic activity or industry generally within the Standard Industrial Classification (SIC) System. Rough guidelines are that a small company employs fewer than 500 people and has less than $5,000,000 in annual sales. For purposes of this analysis, since sales information by firm size is not available, small business will be defined to be ones that employ fewer than 500 people. (SBA has undertaken a national analysis of firms that indicates that typically for a given industry or SIC category, ninety percent of firms employ less than 20 people.) Small government entities are defined as those serving populations of 50,000 or less. In some instances this may be an entire county government, or all political subdivisions and public districts within such counties. Most tribal governments will also meet this standard. Identification of "small organizations" is defined as "any nonprofit enterprise that is independently owned and operated and not dominant in its field." These may include irrigation districts, public utilities, agricultural co-ops, etc.

<u>Sectors</u>

1. Agriculture: Agriculture includes both crop and livestock farming and ranching. Some soil disturbing activities are involved in all types of agriculture. Chemicals (fertilizers and pesticides) are used on cultivated crops and pastures. Some cropland and pasture is irrigated. Use of riparian areas for livestock grazing and some crop production also occurs. Some livestock activities result in concentrated accumulation of animal wastes. All of these activities could potentially be modified or curtailed by farmers and ranchers to avoid "taking" of steelhead. Tillage practices may be modified to minimize soil-disturbing activities. Use of chemicals, such as fertilizers and pesticides, could be modified. Irrigated acreage could be reduced in response to instream flow needs designed to protect habitat. Use of riparian areas for livestock grazing and some crop production could be curtailed. Management of animal wastes could be modified. Management of noxious plants may become more costly. All of these activities could potentially be modified or curtailed in response to the rule, affecting both the costs of production and yield rates, resulting in a change in net farm income. It is likely that some modification or curtailment in agricultural activities will occur as a result of application of take prohibitions.

2. Forestry: Forest management activities typically include site preparation, planting, release, pre-commercial thinning, fertilizing, commercial thinning, and final harvest, with this cycle repeated for each rotation. Within this cycle, there are a number of activities where the common methods used may have to be modified in response to the rule. Several of the activities may involve either construction or re-construction of roads. It is also possible that some harvest methods may have to be modified to lessen the potential amount of soil disturbance. Use of chemicals may also be curtailed, resulting in release activities being modified to use more hand methods instead of chemical methods, and there may be limits on fertilization. In addition to modification of these activities, there may be limits on the land areas where they may be practiced, such as buffer areas around streams. It is likely that some modification or curtailment in forestry activities will occur as a result of the imposition of take prohibitions. Indirect effects from forest products manufacturing activities may result from those changes.

3. Fishing: There are no commercial fisheries for steelhead, but there is recreational fishing by both boat and bank anglers fish for steelhead. Impacts of the prohibitions on take may vary from state to state. Idaho, Washington, and Oregon are developing Fishery Management and Evaluation Plans that are expected to adequately limit incidental take of listed steelhead. Thus, in those states the take prohibitions will likely not apply to ongoing recreational fisheries for non-listed steelhead and resident species. Until such time as the California Department of Fish and Game takes a similar course, recreational fisheries may be considerably curtailed to avoid risk of take of listed steelhead. These impacts could indirectly reduce volume for businesses which service anglers, such as bait shops, outfitters, and marinas.

4. Mining: The most common form of mining potentially affected by the 4(d) rule is sand and gravel. Removal of material from streams may occur in the usual course of this activity, and mining gravel may also result in the production of sediment. Some metal mining also occurs in the various ESUs. Mine wastes may produce both sediments and chemicals. Placer mining and

"mini-dredges" present the possibility of streambed disturbance. All of these activities could potentially be modified or curtailed to avoid any substantial risk of "taking" listed steelhead.

5. Construction: Residential development, commercial development, and highway construction may all involve soil-disturbing activities that can produce sediment in runoff. Where steelhead habitat interacts with growth centers, construction activities could potentially be modified or curtailed in response to the prohibitions on take.

Identification of Small Businesses within Listed Steelhead ESU Impact Areas

The Small Business Administration (SBA), under the Small Business Size Standards, defines whether a business entity is eligible for government programs and preferences reserved for "small business" concerns. Size standards have been established for types of economic activity or industry generally within the Standard Industrial Classification (SIC) System. The SIC system assigns four-digit SIC codes to all economic activity within ten major divisions. A full table matching a size standard with each four-digit SIC code is published annually by SBA in the Federal Register. Table 1 shows the SIC codes and the sectors used in this analysis to determine the number of small establishments.

Identification of Small Governments within Listed Steelhead ESU Impact Areas

Small government entities are defined as those serving populations of 50,000 or less. In some instances this may be an entire county government, or all political subdivisions and public districts within such counties. Districts may include those servicing irrigation, ports, parks and recreation, sanitation, drainage, soil and water conservation, road assessment, etc. These governmental jurisdictions may be affected in many ways including: additional planning required to modify existing programs, increased construction costs in road building and drainage system construction, losses of recreational revenue in the forms of park entry fees and licensing, increased water management costs, increased need for public education, and increased monitoring and enforcement costs. Water management districts are especially susceptible to impacts because flow alterations may be necessary to aid both spawning and smolt migration. This may result in reallocations of water, redesigning existing plans, and developing new programs for conservation and protective measures. These small entities are a likely form of small entity to experience significant impacts. Most tribal governments will also meet this standard. When counties have populations greater than 50,000, those municipalities of fewer than 50,000 can be identified using population reports. Other types of small government entities are not as easily identified under this standard, as they are not typically classified by population.
1. SRB ESU: This ESU has at least 17 county governments , at least 45 town and community governments, and several types of district governments.

Table 1
Small Establishments Sectors

SIC	Sector Description
0700	Agricultural Services

0800	Forestry
0900	Fishing
1000	Metal Mining
1400	Non Metallic Mining
1440	Sand & Gravel
1600	Heavy Construction
1610	Highway & Street Construction
2091	Canned & Cured Seafood
2092	Fresh & Frozen Fish
2410	Logging
2420	Sawmills & Planing Mills
2436	Softwood Plywood & Veneer
2610	Pulp Mills
4449	Water Transportation, Freight NEC
4910	Electric Services

2. MCR ESU: Ten of the counties in the ESU impact area have populations of less than 50,000. There are two tribal governments within the ESU impact area, and numerous other types of district governments.
3. CCV ESU: This includes tribal governments, at least 21 town and community governments, and several types of district governments.
4. LCR ESU: This includes tribal governments, at least 3 town and community governments, and several types of district governments.
5. UWB ESU: There are three cities in the ESU with populations of 50,000 or more. All other cities are categorized as small entities. Also, the Grand Ronde Indian Reservation is in the ESU impact area..
6. SCCC ESU: This includes tribal governments, at least 4 town and community governments, and several types of district governments.
7. CCC ESU: This includes tribal governments, at least 21 town and community governments, and several types of district governments.

Identification of Small Organizations within Listed Steelhead ESU Impact Areas

Small organizations are more difficult to categorize. No quantifiable standard, such as number of employees, business receipts, or population is generally available. Identification of "small organizations" is defined as "any nonprofit enterprise that is independently owned and operated

and not dominant in its field." These may include irrigation districts, public utilities, agricultural co-ops, etc. Further, depending upon state laws, it may be difficult to distinguish whether a small entity is a government or nonprofit entity. For example, a water supply entity may be a cooperative owned by its members in one case and in another a publicly chartered small government with the assets owned publicly and officers elected at the same elections as other public officials. NMFS encourages comment from any small organization that believes the rule may impact its activities.

Geographic Boundaries for Economic Unit Corresponding to ESU

Counties included in this analysis area were identified using data provided by NMFS on county land area included in the ESU and maps provided by NMFS identifying the boundary of the ESU. If any portion of a county was inside the ESU boundary, the entire county was included in the economic impact area. This approach was used because business activities are not restricted by geographic boundaries. Businesses such as those within the agricultural service sector may work within the ESU, and therefore be affected by the 4(d) rule, though they are physically located outside the ESU. Also, changes in water use for an entity within the ESU could impact small entities outside the ESU through changes in availability of water. In practice, the majority of water use planning and management programs are in place already (see Baseline of Existing Protective Measures), and these have some level of provisions to protect threatened or endangered fish. Counties not inside the ESU boundary, but adjacent to counties within the ESU, were evaluated to determine if there could be possible spillover effects on small entities within those counties.

1. Snake River Basin (SRB) ESU: This inland steelhead ESU occupies the Snake River Basin of southeast Washington, northeast Oregon, and northern Idaho. The Snake River flows through terrain that is warmer and drier on an annual basis than the upper Columbia Basin or other drainages to the north. The ESU is spread over 18 counties in the three states, and the economic unit encompasses those same counties. All counties in the unit are rural; the largest city in the ESU (Walla Walla, Washington) contains fewer than 50,000. The following counties are included in the Snake River Basin ESU impact area: Franklin, Walla Walla, Columbia, Garfield, Whitman, and Asotin (WA); Umatilla, Union, and Wallowa (OR); Latah, Nez Perce, Lewis, Clearwater, Idaho, Adams, Valley, Lemhi, and Custer (ID).residents. No counties outside of the Snake River Basin ESU were found to have spillover effects. For the Snake River Basin approximately 64 % of the land is Federally-owned, 33% is private, 2 % state or local, and less than 1% tribal. Because Federal land management agencies must comply with species protection measures as a result of a species being listed as threatened or endangered, this land will not be affected by the 4(d) rule. However, approximately 35 % of the land in this ESU will be affected by the 4(d) rule.

2. Middle Columbia River (MCR) ESU: This inland steelhead ESU occupies the Columbia River Basin and tributaries from above the Wind River in Washington and the Hood River in Oregon (exclusive), upstream to, and including, the Yakima River, in Washington. Genetic differences between inland and coastal steelhead are well established, although some uncertainty

remains about the exact geographic boundaries of the two forms in the Columbia River. The following counties are included in the Middle Columbia River ESU impact area: Umatilla, Grant, Wheeler, Morrow, Gilliam, Sherman, Jefferson, and Wasco, Oregon; Klickitat, Yakima, Kittitas, Benton, Walla Walla, and Columbia, Washington. No counties outside of the Middle Columbia River ESU were found to have spillover effects. For the Middle Columbia River ESU, 23 percent of the land is Federally-owned, 64 percent private, and the remainder state, local or tribal. Because Federal land management agencies must comply with species protection measures as a result of a species being listed as threatened or endangered, this land will not be affected by the 4(d) rule. The majority of land in the ESU will be affected by the 4(d) rule.

3. Lower Columbia River (LCR) ESU: This coastal steelhead ESU occupies tributaries to the Columbia River between the Cowlitz and Wind Rivers in Washington, inclusive, and the Willamette and Hood Rivers in Oregon, inclusive. Excluded are steelhead in the upper Willamette River Basin above Willamette Falls, and steelhead from the Little and Big White Salmon Rivers in Washington. The following counties are included in the Lower Columbia River ESU impact area: Lewis, Cowlitz, Clark, and Skamania (WA); Columbia, Washington, Multnomah, Hood River, and Clackamas (OR). No counties outside of the Lower Columbia River ESU were found to have spillover effects. For the Lower Columbia River ESU 38% of the land is Federally-owned, 56 percent private, and the remainder state, local or tribal. Because Federal land management agencies must comply with species protection measures as a result of a species being listed as threatened or endangered, this land will not be affected by the 4(d) rule. The majority of land in the ESU will be affected by the 4(d) rule.

4. Upper Willamette River (UWR) ESU: This steelhead ESU occupies the Willamette River and its tributaries, upstream from Willamette Falls to the Calapooia River, inclusive. This is a revision of the proposed ESU boundary, in that NMFS now refines the range of this ESU to exclude rivers upstream of the Calapooia River. Steelhead native to the Upper Willamette River ESU are late-run winter steelhead, but introduced hatchery stocks of summer and early-run winter steelhead also occur in the upper Willamette River. The following counties are included in the Upper Willamette River Steelhead ESU impact area: Washington, Clackamas, Marion, Linn, Benton, Polk, and Yamhill, Oregon. No counties outside of the Upper Willamette River ESU were found to have spillover effects For the Upper Willamette River ESU, 10 percent of the land is Federally-owned, 88 percent private, and the remainder state, local or tribal. Because Federal land management agencies must comply with species protection measures as a result of a species being listed as threatened or endangered, this land will not be affected by the 4(d) rule. The majority of land in the ESU will be affected by the 4(d) rule.

5. Central California Coast (CCC) ESU: This coastal steelhead ESU occupies river basins from the Russian River, Sonoma County (inclusive) to Aptos Creek, Santa Cruz County (inclusive), and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), Napa County. The Sacramento-San Joaquin River Basin of the Central Valley is excluded. The ESU area is characterized by very erosive soils in the Coast Range mountains, with precipitation levels lower here than in areas to the north. Elevated stream temperatures (greater than 20

degrees C) are common in the summer. The following counties are included in the Central California Coast ESU economic impact area: Mendocino, Sonoma, Marin, Napa, Solano, Contra Costa, San Mateo, Alameda, Santa Cruz, Santa Clara, San Francisco. No counties outside of the Central California Coast ESU were found to have spillover effects. For the Central California Coast ESU only 5% of the land is Federally-owned. Some 89 percent is privately owned and the remainder is state, local or tribal. Because Federal land management agencies must comply with species protection measures as a result of a species being listed as threatened or endangered, this land will not be affected by the 4(d) rule. The majority of this land will be affected by the 4(d) rule.

6. California Central Valley (CCV) ESU: The Sacramento and San Joaquin Rivers offer the only migration route to the drainages of the Sierra Nevada and southern Cascade mountain ranges for anadromous fish. The distance from the Pacific Ocean to spawning streams can exceed 300 km, providing unique potential for reproductive isolation among steelhead. Steelhead within this ESU have the longest freshwater migration of any population of winter-run steelhead. The following counties are included in the California Central Valley ESU impact area: Shasta, Tehama, Plumas, Glenn, Butte, Sierra, Colusa, Yuba, Nevada, Sutter, Placer, Yolo, El Dorado, Sacramento, Amador, Calaveras, San Joaquin, Stanislaus, Tuolumne, Mariposa and Merced. Five counties outside the ESU (Madera, Fresno, Kings, Tulare, and Kern) were identified as within the economic impact area of the CCV ESU through potential water supply impacts**.** For the Central Valley ESU, only 8% of the land is Federally-owned, 89 percent private, and the remainder state, local or tribal. Because Federal land management agencies must comply with species protection measures as a result of a species being listed as threatened or endangered, this land will not be affected by the 4(d) rule. The majority of land in the ESU will be affected by the 4(d) rule.

7. South Central California Coast (SCCC) ESU: This coastal steelhead ESU occupies rivers from the Pajaro River, located in Santa Cruz County, (inclusive) to (but not including) the Santa Maria River, San Luis Obispo County. Most rivers in this ESU drain the Santa Lucia Mountain Range, the southernmost unit of the California Coast Ranges. The climate is drier and warmer than in the north, which is reflected in the vegetational change from coniferous forest to chaparral and coastal scrub. The following counties are included in the South-Central California Coast ESU impact area: Santa Cruz, Monterey, San Luis Obispo, Santa Clara, San Benito**.** No counties outside of the SCCC ESU were found to have spillover effects. Approximately 18 percent of the land in the ESU is Federal, 80 percent private, and the remainder state or local. Hence, by far the majority of the land in the ESU will be affected by the 4(d) rule.

Universe--Numbers of Small Businesses

County Business Patterns (CBP) data, published by the U.S. Department of Commerce, are used at the county level to determine the number of firms in each affected sector in each county that meet the SBA small business classification standard. The results of the identification of small entities in counties associated with the various ESUs are presented in Tables 2 and 3. These tables establish an upper limit on the number of small businesses potentially affected by the 4(d)

rule. Some of these establishments are a part of a larger entity that does not fit the criteria for a small business. Furthermore, as illustrated by the list of questions in Section V that establish the baseline for which impacts are to be measured., not all of these establishments will be impacted by these steelhead regulations given the presence of other regulations and the limits put on the take prohibitions.

For the sectors examined, all establishments had between 1 and 499 employees except for two heavy construction firms, and two classified under agricultural services. County Business Patterns (CBP) data are used at the county level to determine the number of firms in each affected sector in each county that meet the SBA small business classification standard. The Census of Agriculture was used to identify the number of farms with sales of less than $500,000. Ninety-three percent of total number of farms in the seven ESUs have sales below the SBA threshold of less than $500,000 in sales (see Table 3).

Table 2-Number of Establishments by ESU

Type of Establishment	CCC	SCCC	CCV	LCR	SRB	UWR	MCR
Agricultural Services	2,909	1,158	2,593	875	212	717	278
Forestry	33	13	79	107	24	24	114
Fishing	71	19	15	16	3	7	2
Metal Mining	16	9	24	3	12	4	0
Non-Metallic Mining	46	25	110	44	16	49	12
Sand & Gravel Mining	26	15	63	20	7	22	6
Heavy Construction	562	204	754	326	93	227	104
Highway & Street Construction	176	75	241	99	44	72	36
Logging	75	10	282	368	228	279	180
Sawmills & Planing Mills	36	6	79	91	48	66	27
Softwood Plywood & Veneer	0	0	3	9	2	10	2
Electric Services	24	6	80	33	25	23	25

Table 3-Number of Farms by ESU

ESU	Less than $500,000	$500,000 or More
CCC ESU	8,911	544
CCV ESU	38,776	4,170
SCCC ESU	4,973	591
LCR ESU	9,157	200
SNB ESU	8,551	316
MCR ESU	9,902	530
UWR ESU	12,190	412

VIII. Baseline of Existing Protective Measures

This analysis addresses the incremental economic impacts of the rule on small entities, over and above the baseline conditions established by listing actions and those activities adequately regulated by state and tribal governments which aid in the conservation of the species.

Existing regulations and programs are reviewed below, in an effort to isolate the incremental actions small entities may need to take to avoid "taking" steelhead beyond behavior already required by previous listings of endangered species, by various Federal laws such as the Clean Water Act, various state conservation measures, and any other existing fish and wildlife legislation.

Federal Protection Measures

1. Previous Listings

a. SRB ESU: The Snake River Basin ESU for steelhead has considerable geographic overlap with both the Snake River Fall and Spring/Summer Chinook ESU's, which are currently listed as threatened species. Snake River Spring/Summer and Fall Chinook[2] (59 FR 42529) were previously subject to § 9 take prohibitions under a 4(d) interim rule. In effect, this means that many precautionary actions may already have occurred for a landowner, local government, or small business in the ESU. For example, screening of agricultural water diversions may have occurred in response to the Chinook listing, and therefore lessen the net effects of the steelhead listing. However, Chinook habitat occurs at lower altitudes, and covers a geographic area smaller than steelhead habitat. Consequently, there may be several incremental effects of this interim 4(d) rule for steelhead. Restrictions on stream alteration, however, and the necessity of screening water diversions may already exist as a result of the previous listing.

[2] 59 FR 42529

b. MCR ESU: There are no previous listings for anadromous fish that significantly overlap with the Middle Columbia River ESU for steelhead. Consequently, it is assumed that any actions taken that benefit steelhead conservation have occurred on a voluntary basis, or as a result of a state, local, or tribal conservation effort

c. LCR ESU: There are no previous listings for anadromous fish that significantly overlap with the Lower Columbia River Basin ESU for steelhead. Consequently, it is assumed that any actions taken that benefit steelhead conservation have occurred on a voluntary basis, or as a result of a state, local, or tribal conservation effort.

d. UWR ESU: There are no previous listings for anadromous fish that significantly overlap with the Upper Willamette River ESU for steelhead. However, there is a concurrent listing for chinook in the Upper Willamette River chinook ESU that significantly overlaps with the Upper Willamette River steelhead ESU. Consequently, it is assumed that any actions taken that benefit steelhead conservation will simultaneously be motivated by both listings.

e. CCC ESU: Part of the Central California Coast ESU overlaps with the ESU for Coho Salmon, which was listed as threatened on October 31, 1996 (61 FR 561380). The ESU for steelhead also overlaps the area proposed as threatened for the Chinook salmon. The 4(d) rule governing "take" of Coho is similar to that of the 4(d) interim rule for steelhead. In effect, this means that many precautionary actions may already have been undertaken by a landowner, local government, or small business in the ESU. For example, screening of agricultural water diversions may have occurred in response to the Coho listing, and therefore lessen the net effects of the steelhead listing. However, the habitats do not completely overlap and there may be many incremental effects of this interim 4(d) rule for steelhead. Restrictions on stream alteration however, and the necessity of screening water diversions may already exist as a result of the previous listing.

f. SCCC ESU: There are no previous listings for anadromous fish that would significantly overlap with the South-Central California Coast ESU for steelhead. Consequently, it is assumed that any actions taken that benefit steelhead conservation have occurred on a voluntary basis, or as a result of a state, local, or tribal conservation effort

g. CCV ESU: The Central Valley ESU for steelhead has considerable geographic overlap with the Central Valley ESU for Sacramento Winter-Run Chinook (58 FR 5370302) which has previously been subject to § 9 take prohibitions. In effect, this means that many precautionary actions may already have occurred for a landowner, local government, or small business in the ESU. For example, screening of agricultural water diversions may have occurred in response to the Chinook listing, and therefore lessen the net effects of the steelhead listing. However, Winter-run Chinook habitat occurs at lower altitudes, and covers a geographic area smaller than steelhead habitat. Furthermore, flow alterations that have occurred as a result of the Winter-run Chinook listing affect a different spawning season than steelhead. Consequently there may be several incremental effects of this interim 4(d) rule for steelhead. Restrictions on stream alteration however, and the necessity of screening water diversions may already exist as a result of the previous listing.

2. Section 7 Consultation

Actions with Federal involvement (i.e., authorized, funded, or conducted by a Federal agency) fall under § 7 of the ESA. Section 7 is a very powerful mechanism to avoid activities that jeopardize listed species or affect critical habitat. Under § 7, Federal agencies must ensure that their actions are not likely to jeopardize the continued existence of the listed species. Activities that jeopardize a species are defined as those actions that "reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery" of the species (See 50 C.F.R. 402.02). Examples of Federal activities that may affect the conservation of steelhead include dam and hatchery operations, marine fishery regulations, Federal land management activities, and Federal licensing and permitting for such actions as forestry and logging, mining, road construction, dam construction, discharge of fill material, stream channelization, and stream diversion. These activities are not affected by the 4(d) prohibitions, as long as § 7 consultation has been completed and such activities are conducted in accordance with any terms and conditions specified by NMFS. Consultations are required automatically after a species is listed. As a result, this economic analysis addresses only the incremental impacts of the proposed 4(d) rule, and excludes the effects on small businesses which may occur at present or in the future as a result of Federal agency policy changes resulting from § 7 consultations.

3. Northwest Forest Plan

The Northwest Forest Plan (NFP) is a Federal management policy with important benefits for steelhead. While the NFP covers a very large area, the overall effectiveness of the NFP in conserving steelhead is limited by the extent of Federal lands and the fact that Federal land ownership is not uniformly distributed in watersheds within the affected ESUs. The extent and distribution of Federal lands limits the NFP's ability to achieve its aquatic habitat restoration objectives at watershed and river basin scales and highlights the importance of complementary salmon habitat conservation measures on non-federal lands within the subject ESUs.[3]

4. PACFISH

On February 25, 1995, the U.S. Forest Service and Bureau of Land Management adopted Implementation of Interim Strategies for Managing Anadromous Fish-Producing Watersheds in eastern Oregon and Washington, Idaho, and portions of California (known as PACFISH). The strategy was developed in response to significant declines in naturally reproducing salmonid stocks, including steelhead, and widespread degradation of anadromous fish habitat throughout public lands in Idaho, Washington, Oregon, and California, outside the range of the northern spotted owl. Like the NFP, PACFISH is an attempt to provide a consistent approach for maintaining and restoring aquatic and riparian habitat conditions which, in turn, are expected to promote the sustained natural production of anadromous fish. However, as with the NFP, PACFISH is limited by the extent of Federal lands and the fact that Federal land ownership is not uniformly distributed in watersheds within the affected ESUs. Furthermore, PACFISH was designed to be a short-term land management/anadromous fish conservation strategy to halt

[3] National Marine Fisheries Service, Steelhead Conservation Efforts, A Supplement to the Notice of Determination for West Coast Steelhead Under the Endangered Species Act, August, 1996.

habitat degradation and begin the restoration processes until a long-term strategy could be adopted through the Interior Columbia River Basin Ecosystem Management Project While final work on ICBEMP has been delayed, NMFS has consulted with both USFS and BLM on current forest management activities, in order to assure that they will no jeopardize listed steelhead or other salmonids.

5. Habitat Conservation Plans (HCPs)
NMFS and FWS are also engaged in an ongoing effort to assist in the development of multiple species Habitat Conservation Plans (HCPs) for state and privately owned lands in Oregon and Washington. While § 7 of the ESA addresses species protection associated with Federal actions and lands, Habitat Conservation Planning under § 10 of the ESA addresses species protection on private (non-federal) lands. HCPs are particularly important since well over half of the habitat in the range of the Upper Willamette and Middle Columbia River steelhead ESUs is in non-federal ownership. The intent of the HCP process is to ensure that any incidental taking of listed species will not appreciably reduce the likelihood of survival of the species, reduce conflicts between listed species and economic development activities, and to provide a framework that would encourage "creative partnerships" between the public and private sectors and state, municipal, and Federal agencies in the interests of endangered and threatened species and habitat conservation.

6. Clean Water Act (CWA)
The Federal Water Pollution Control Act (FWPCA) was originally enacted in 1972 and amended with major provisions by legislation in 1977, 1981, and 1987. It is commonly referred to as the Clean Water Act, the title of the 1977 amendments. The principle objective of the Act is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The FWPCA also establishes a national policy on technology-based effluent standards and limitations and discharge water quality standards. The Environmental Protection Agency (EPA) has been given principle responsibility for administering the FWPCA.

All entities are presently regulated as to the amount of a pollutant that a point source can discharge into the water. The FWPCA requires that all discharges comply with minimum effluent limitations or standards. These requirements presently affect all of the entities considered in this analysis. In January 1998, President Clinton announced a major new clean water initiative designed to speed the restoration of water quality within the nation's watersheds. This new initiative (to be administered by the EPA) will increase the Federal government's support to states in carrying out a watershed approach to clean water. Included within this new initiative will be more stringent requirements regarding water runoff from Federal lands and incentives for private landowners, including providing technical assistance in reducing polluted runoff from agricultural, range, and forest lands.

The Federal CWA is intended to protect beneficial uses, including fishery resources. To date, implementation has not been effective in adequately protecting fishery resources, particularly

with respect to non-point sources of pollution. Still, the CWA is part of the baseline scenario, and compliance is assumed for the purpose of considering the impacts of the 4(d).

Section 303(d)(1) (C) and (D) of the CWA requires states to prepare Total Maximum Daily Loads (TMDLs) for all water bodies that do not meet state water quality standards. If a state fails in this responsibility, EPA is required to do so. TMDLs are a method for quantitative assessment of environmental problems in a watershed and identifying pollution reductions needed to protect drinking water, aquatic life, recreation, and other use of rivers, lakes, and streams. TMDLs may address all pollution sources including point sources such as sewage or industrial plant discharges, and non-point discharges such as runoff from roads, farm fields, and forests. State agencies in Oregon are committed to completing TMDLs for coastal drainages within 4 years and all impaired waters within 10 years. Similarly ambitious schedules are in place or in development for Washington and Idaho. No schedule has been set by the state of California.

The ability of these TMDLs to protect steelhead should be significant in the long term. However, it will be difficult to develop them quickly in the short term and their efficacy in protecting steelhead habitat will be unknown for years to come.

7. Central Valley Project Improvement Act (CVPIA)

The CVPIA is specifically intended to remedy habitat and other problems associated with the construction and operation of the Bureau of Reclamation's (BOR's) Central Valley Project. The CVPIA has two key features related to steelhead. First, it directs the Secretary of the Interior to develop and implement a program that makes all reasonable efforts to double natural production of anadromous fish in Central Valley streams (§ 3406(b)(1)) by the year 2002. This plan, which is called the Anadromous Fish Restoration Program (AFRP), was initially drafted in 1995 and subsequently revised in 1997. Funding has been appropriated since 1995 to implement restoration projects identified in the AFRP planning process. Second, the CVPIA dedicates up to 800,000 acre-feet (AF) of water annually for fish, wildlife, and habitat restoration purposes (§3406(b)(2)) and provides for the acquisition of additional water to supplement the 800,000 AF (§3406(b)(3)). FWS, in consultation with other Federal and state agencies, has directed the use of this dedicated water yield since 1993.

The AFRP addresses six anadromous fish species, including steelhead, identified for restoration in the CVPIA. The revised 1997 plan presents the goals, objectives, and strategies of the AFRP; describes processes the AFRP used to identify, develop, and select restoration actions; and lists actions and evaluations determined at a programmatic level to be reasonable to implement as part of the AFRP. FWS intends to finalize this restoration plan in 1998 following completion of the Programmatic Environmental Impact Statement (PEIS) required by § 3409 of the CVPIA. Additionally, FWS and BOR have released guidelines in the form of two administrative proposals that will provide guidance for several key aspects of the AFRP implementation. A draft administrative proposal regarding the development of the AFRP was released in June 1997. A final administrative proposal on the management of § 3406(b)(2) water and a set of flow-related actions for the next 5 years was released by DOI in November, 1997. These plans will be

updated to include new information, consistent with the adaptive management approach described in the AFRP. To make restoration efforts as efficient as possible, the AFRP has committed to coordinate restoration efforts with those by other groups or programs. DOI has committed to working with NMFS, CDFG, and others to coordinate actions in this implementation and recovery plans for anadromous fish and for listed and proposed species under the ESA.

The CVPIA obligated $1.9 million in 1996 for 11 site-specific restoration actions and evaluations authorized by the AFRP, and $9.7 million for over 30 restoration projects in 1997. In 1998, the AFRP's projected budget for habitat restoration activities in the Central Valley is $8.2 million. Continued long term funding of AFRP restoration activities is currently authorized in the CVPIA. An estimated $20 million to $35 million will be spent on AFRP restoration actions per year for 25 years ($500 million to $875 million estimated total), most of which will be closely integrated with funding for activities implemented through the CALFED Bay-Delta Program.

8. CALFED

The second conservation initiative that benefits Central Valley steelhead and other species is the CALFED Program. In June 1994, state and Federal agencies, including NMFS, signed a framework agreement that pledged all agencies would work together to formulate water quality standards to protect the Bay-Delta, coordinate state Water Project and Central Valley Project operations in the Bay-Delta, and develop a long-term Bay-Delta solution that would address ecosystem restoration and other objectives.. The CALFED Program, which began in June 1995, is charged with the responsibility of developing a long-term Bay-Delta solution.

Three types of environmental protection measures are detailed in the Bay-Delta Accord: (1) Control of freshwater outflow in the Delta to improve estuarine conditions in the shallow-water habitat of the Bay-Delta estuary (Category I measures); (2) regulation of water project operations and flows to minimize harmful environmental impacts of water exports (Category II measures); and (3) implementation of projects to address non-flow related factors affecting the Bay-Delta ecosystem, such as unscreened diversions, physical habitat degradation, and pollution (Category III measures). Many of the Category I and II measures identified in the agreement were implemented by a Water Quality Control Plan that was adopted by the state Water Resources Control Board in 1995. Efforts were also initiated to fund and implement Category III non-flow projects beginning in 1995.

The CALFED Program completed Phase I in September 1996 with the identification of problems confronting the Bay-Delta system, the development of a mission statement and guiding principals, and the development of three basic alternative approaches to solving the problems. Currently in Phase II, the CALFED Program has refined the preliminary alternatives and is conducting a comprehensive programmatic environmental review with implementation strategies. In addition to the development of three water conveyance and storage alternatives, the CALFED Program has developed four common programs to resolve regional problems: ecosystems quality, water quality, levee system vulnerability, and water system reliability. A

major element of the CALFED Program is the Ecosystem Restoration Program Plan (ERPP) which is intended to provide the foundation for long-term ecosystem and water quality restoration and protection throughout the region. Since adoption of the Bay-Delta Accord, urban water users have contributed approximately $21 million and state Proposition 204 has generated an additional $60 million for Category III non- flow habitat restoration projects. Among the non-flow factors for decline that have been targeted by the Category III program are unscreened diversions, waste discharges and water pollution prevention, impacts due to poaching, land derived salts, exotic species, fish barriers, channel alterations, loss of riparian wetlands, and other causes of estuarine habitat degradation.

Continued funding of CALFED program activities and the Category III program are assured through funds provided by state Proposition 204, Federal funding through the DOI, and contributions by water development agencies under Category III. The total cost for implementing the ERPP component of the long- term CALFED Program has been estimated at $1.5 billion, of which about half should be available through state Proposition 204 bonds and expected Federal appropriations.

Collectively, the CVPIA and CALFED conservation programs have the potential to provide a comprehensive conservation response to the extensive ecological problems facing steelhead and other salmonids in the Central Valley.

In the San Joaquin River Basin of the Central Valley, collaboration between water interests and state and Federal resource agencies, including NMFS, has led to the development of a scientifically based, adaptive fisheries management plan known as the Vernalis Adaptive Management Plan (VAMP). The VAMP will provide environmental benefits for fall-run Chinook salmon smolts in the Delta and lower San Joaquin River and its tributaries, but NMFS expects that the long-term commitment of all participating parties to fully implement the plan will provide ancillary benefits to Central Valley steelhead through improved flow and passage conditions.

NMFS reviewed and evaluated habitat restoration efforts implemented by the CALFED and CVPIA programs to date. Central Valley steelhead have benefitted from improved habitat protection resulting from the placement of new fish screens, modifications of barriers to fish passage, and various habitat acquisition and restoration projects. NMFS believes that the benefits provided by these habitat improvements, and other measures recently implemented, have diminished the risk faced by Central Valley steelhead ESU.

9. EQIP, CRP, WRP, and WHIP

Impacts on entities may be mitigated somewhat by four USDA Natural Resource Conservation Service programs. The Wetlands Reserve Program (WRP), Conservation Reserve Program (CRP), Environmental Quality Incentives Program (EQIP), and Wildlife Habitat Incentives Program (WHIP) all target landowners who bear costs when improving their land for an environmental objective. These programs potentially share costs of moving to best management

practices (BMP's), and provide rental monies for easements. Budgets for these programs are limited however, and it cannot be assumed they are guaranteed to be available to all landowners bearing costs.

State Conservation Measures

Various conservation plans and protective measures relevant to the seven ESUs have been implemented at state and local levels. While several of the plans addressed show promise for ameliorating risks facing steelhead, some of the measures have not been implemented. Many of these measures are also geographically limited to individual river basins or political subdivisions, thereby improving conditions for only a small portion of the entire ESU. To the extent possible, this analysis considers existing state and local protective measures as part of the baseline, and excludes their effects from the analysis. However, conservation plans and measures which are developed in response to the take guidelines of this 4(d) rule can be considered part of the effect of the 4(d) rule.

1. Oregon Conservation Measures

a. Forest Practices Act

The Oregon Forest Practices Act (FPA) was passed in the state legislature in 1971, and has undergone two major revisions in 1986 and in 1991. This act regulates forest operations on private and state lands, and sets standards for reforestation, stream protection, tree retention for wildlife habitat, and protection of scenic corridors. The Board of Forestry enforces the FPA, including through civil penalties. Although modified in 1995 and improved over the previous OFPA, the FPA's implementing rules do not yet adequately protect salmonid habitat. In particular, the current OFPA does not provide adequate protection for the production and introduction of LWD to medium, small and non-fish bearing streams. Small non-fish bearing streams are vitally important to the quality of downstream habitats. These streams carry water, sediment, nutrients, and LWD from upper portions of the watershed. Nonetheless, compliance with the FPA does provide many important protections for salmonid habitat.

b. Agricultural Water Quality Management Practices

Agricultural activity has had multiple and often severe impacts on salmonid habitat. These impacts include depletion of needed flows by irrigation withdrawals; blocking of fish passage by diversion or other structures; destruction of riparian vegetation and bank stability by grazing or cultivation practices; and channelization resulting in loss of side channel and wetland-related habitat (NMFS, 1996b). Historically, the impacts to fish habitat from agricultural practices have not been closely regulated.

The Oregon Department of Agriculture has recently completed guidance for development of agricultural water quality management plans (AWQMPs) (as enacted by State Senate Bill 1010). The guidance focuses on achieving state water quality standards. It is undetermined, however, whether they will adequately address salmonid habitat factors, such as properly functioning riparian conditions. Their ability to address all relevant factors will depend on the manner in which they are implemented. AWQMPs are anticipated to be developed at a basin scale and will

include regulatory authority and enforcement provisions. The Healthy Streams Partnership schedules adoption of AWQMPs for all impaired waters by 2001.

c. Oregon Plan for Salmon and Watersheds

In April 1996, the Governor of Oregon completed and submitted to NMFS a comprehensive conservation plan directed specifically at coho salmon stocks on the Coast of Oregon. This plan, termed the Oregon Plan for Salmon and Watersheds (OPSW) (formerly known as the Oregon Coastal Salmon Restoration Initiative) was later expanded to include conservation measures for coastal steelhead stocks (Oregon, 1998). The steelhead supplement provides agency measures designed to counteract specific steelhead factors for decline as identified by the NMFS, including water quality and physical habitat, water quantity, and fish management issues affecting steelhead populations within the state. Among other things, Oregon has committed to

- devise and fund monitoring programs to assess stock status and redirect existing management programs if need be;
- establish a process for setting wild steelhead escapement goals;
- continue to implement marking of all hatchery steelhead; and
- eliminate stocking of hatchery trout in juvenile steelhead rearing habitat.

d. Willamette Restoration Initiative (WRI)

Protecting and restoring fish and wildlife habitat and population levels in the Willamette River Basin, promoting proper floodplain management, and enhancing water quality is the focus of the recently formed Willamette Restoration Initiative (WRI). The WRI creates a mechanism through which residents of the basin are mounting a concerted, collaborative effort to restore watershed health. In addition, habitat protection and improved water quality in the Portland/Vancouver metropolitan areas are getting unprecedented attention from local jurisdictions. The regional government, Metro, recently adopted an aggressive stream and floodplain protection ordinance designed to protect functions and values of floodplains, and natural stream and adjacent vegetated corridors. All jurisdictions in the region must amend their land use plans and implementing ordinances to comply with the Metro ordinance within 18 months. Metro also has a green spaces acquisition program that addresses regional biodiversity, and is giving protection to significant amounts of land, some of it on tributaries to the Willamette River. The city of Portland has identified those activities which impact salmonids and is now using that information to reduce impacts of existing programs and to identify potential enhancement actions. The city will shortly be making significant improvements in its storm water management program, a key to reducing impacts on salmonid habitat.

2. Idaho Conservation Measures

The majority of land area within the Snake River ESU (about 70 percent) is under Federal management; therefore, in most watersheds the State of Idaho's forest practice rules play a lesser role in forest management relative to Federal measures (i.e., PACFISH). Even so, NMFS believes that certain aspects of the State's forest practice rules do not avoid adverse effects to anadromous fish populations or their habitat. Specifically, current riparian buffer width

requirements are inadequate, as well as rules which do not prohibit logging on unstable hillsides and landslide prone areas.

The Idaho Department of Fish and Game has adopted and implemented a natural salmonid policy designed to limit hatchery influences on natural, indigenous steelhead. Idaho natural resource and environmental management agencies have also developed a series of policies relating to the restoration of fisheries habitat. These policies include improving state efforts in eliminating non-point sources of water pollution, management of land and water resources, and insuring adequate stream flows for protection of aquatic and riparian resources.

3. Washington Conservation Measures

a. Lower Columbia Steelhead Conservation Initiative (LCSCI)

The State of Washington is currently in the process of developing a statewide strategy to protect and restore wild steelhead and other salmon and trout species. In May 1997 Governor Gary Locke and other state officials created a Joint Natural Resources Cabinet (Joint Cabinet) consisting of state agency directors from a wide variety of agencies whose activities and constituents influence Washington's natural resources. The goal of the Joint Cabinet is to restore healthy salmon, steelhead, and trout populations by improving those habitats on which the fish rely. The Joint Cabinet's current activities include development of the LCSCI, intended to comprehensively address protection and recovery of steelhead in the Lower Columbia River area. In conjunction with the LCSCI process, industry in the Lower Columbia River ESU sponsored the review and assessment of existing conservation programs in this region (Cramer, 1997). This assessment provided a helpful summary of measures, which if fully implemented and funded, may aid in conserving steelhead in this region.

The scope of the LCSCI includes Washington's steelhead stocks in two transboundary ESUs that are shared by both Washington and Oregon. The LCSCI area includes all of Washington's stocks in the Lower Columbia River ESU. When completed, conservation and restoration efforts in the LCSCI area will form a comprehensive, coordinated, and timely protection and rebuilding framework. Benefits to steelhead and other fish species in the LCSCI area will also accrue due to the growing bi-state partnership with Oregon.

b. Watershed Management Initiatives

The Legislature passed, and Governor Locke signed into law, the Watershed Management Act (ESHB 2514), which provides funding and a planning framework for locally based watershed management. Depending on how selected local governments and water utilities within a watershed decide to use the planning framework provided in ESHB 2514 (i.e., addressing water quality and habitat as well as water quantity), these watershed plans may have an important connection to specific salmon preservation and restoration activities and overall regional salmon recovery initiatives.

The Legislature also passed, and the Governor signed, the Salmon Recovery Planning Act (ESHB 2496), which provides funding and a procedural framework for prioritizing salmon

restoration projects within specified areas agreed to by participating county, city, and tribal governments. These restoration efforts will be important components of watershed and regional salmon recovery initiatives.

c. Washington Forest Practice Rules

The Washington Department of Natural Resources implements and enforces the State of Washington's forest practice rules (WFPRs) which are promulgated through the Forest Practices Board. These WFPRs contain provisions that can be protective of steelhead if fully implemented. This is possible given that the WFPR's are based on adaptive management of forest lands through watershed analysis, development of site-specific land management prescriptions, and monitoring. Watershed Analysis prescriptions can exceed WFPR minimums for stream and riparian protection. However, NMFS believes the WFPRs, including watershed analysis, do not provide properly functioning riparian and instream habitats. Specifically, the base WFPRs do not adequately address large woody debris recruitment, tree retention to maintain stream bank integrity and channel networks within floodplains, and chronic and episodic inputs of coarse and fine sediment that maintain habitats that are properly functioning for all life stages of steelhead. However, NMFS believes that if the WFPRs are modified to reflect the April, 1999 Forests and Fish Report, they will provide adequate protection for listed steelhead.

d. Agricultural Water Policy

Washington has not historically regulated impacts of agricultural activity on fish habitat overall, although there are some special requirements in the Puget Sound area, and Department of Ecology is currently giving close attention to impacts from dairy operations. As in Oregon, development of Total Maximum Daily Loads (TMDLs; see earlier discussion) should improve water quality over the long term; the extent to which other habitat impacts will be ameliorated is unknown.

e. Wild Salmonid Policy

Washington has adopted a Wild Salmonid Policy, designed to limit hatchery influences on natural, indigenous steelhead. Sport fisheries are based on marked, hatchery-produced steelhead, and sport fishing regulations are designed to protect wild fish.

4. California Conservation Measures

a. California Department of Forestry and Fire Protection (CDF)

California has a number of agencies which have both direct and indirect effects upon steelhead factors for decline. The CDF enforces the state of California's forest practice rules (CFPRs) that are promulgated through the Board of Forestry (BOF). The CFPRs contain provisions that can be protective of steelhead if fully implemented. However, NMFS believes the CFPRs do not secure properly functioning riparian habitat. Specifically, the CFPRs do not adequately address large woody debris recruitment, streamside tree retention to maintain bank stability, and canopy retention standards that assure stream temperatures are properly functioning for all life stages of steelhead. The current process for approving Timber Harvest Plans (THPs) under the CFPRs does not include monitoring of timber harvest operations to determine whether a particular

operation damaged habitat and, if so, how it might be mitigated in future THPs. The CFPR rule that permits salvage logging is also an area where better environmental review and monitoring could ensure better protection for steelhead. For these reasons, NMFS is working to improve the condition of riparian buffers in ongoing habitat conservation plan negotiations with private landowners. For the purpose of baseline definition, the existing programs are assumed to be in place. However, it is likely that additional measures will be necessary to fully protect steelhead.

b. California Department of Fish and Game

The state of California has jurisdiction over recreational fisheries conducted within its inland waters. Inland fishing regulations are promulgated by the California Fish and Game Commission and enforced by the CDFG. In recent years, the state has implemented conservation measures for steelhead including adoption of the Steelhead Restoration and Management Plan, adoption of angling regulation changes throughout the state which it believes provide adequate protection of steelhead populations, and implementation of the Steelhead Trout Catch Report/Restoration Card program. The steelhead report card program has generated funding for steelhead conservation programs throughout the state and has also generated much needed information regarding sport harvest effort and impacts on steelhead. The state is making additional regulatory and management changes to protect steelhead in California, such as minimum size limits for juvenile rainbow trout, zero bag limits, and the increased marking of hatchery produced steelhead.

The state agency has adopted and is implementing natural salmonid policies designed to limit hatchery influences on natural, indigenous steelhead. Sport fisheries are based on marked, hatchery-produced steelhead, and sport-fishing regulations are designed to protect wild fish. While some limits have been placed on hatchery production of anadromous salmonids, more careful management of current programs and scrutiny of proposed programs is necessary in order to minimize impacts on listed species.

c. Agriculture

Private lands, and public lands not administered by the Federal government, are now being addressed by the California Rangeland Water Quality Management Plan (CRWQMP) which was adopted by the state Water Resources Control Board as a voluntary compliance effort in accordance with its Non-point Source Management Plan. The emphasis of the CRWQMP is on outreach and education with assistance from the Natural Resources Conservation Service (NRCS), University of California Cooperative Extension, California Association of Resource Conservation Districts (CARCD), and the California Cattleman's Association. The Best Management Practices (BMPs) contained in the CRWQMP are derived from the NRCS Field Office Technical Guides.

The program encourages rangeland owners to develop and implement ranch plans or other documents detailing their management goals and practices. NRCS and Cooperative Extension provide training in this effort and the NRCS can condition assistance on implementation of the BMPs set forth in the CRWQMP. The Regional Water Control Boards promote implementation of the CRWQMP by also encouraging landowners to develop plans and by requiring ranch plans

to be developed and implemented in accordance with the CRWQMP for watersheds listed under § 303(d) of the CWA as requiring the development of TMDLs. NMFS is encouraged by these ongoing efforts. Plans that are consistent with the CRWQMP guidance are likely to result in meeting state water quality standards, but the program is voluntary and it is uncertain to what extent their implementation will contribute to improved habitat conditions and riparian function.

d. Watershed Protection and Restoration Council

In July 1997, California's Governor signed Executive Order W-159-97 that created the Watershed Protection and Restoration Council (WPRC). The WPRC, which is chaired by the Secretary of Resources, is an umbrella body consisting of all state agencies that have programs addressing anadromous salmonid protection and restoration. Under state law, the WPRC is charged with (1) providing oversight of all state activities aimed at watershed protection and enhancement, including the conservation and restoration of anadromous salmonids in California, and (2) directing the development of a Watershed Protection Program that provides for anadromous salmonid conservation in the state. The WPRC has established a 12-member, multi-disciplinary science review panel to advise it in the development of the watershed protection program. The WPRC is currently in the process of comprehensively reviewing and evaluating existing statewide regulatory and non-regulatory programs protecting anadromous salmonids and their habitat, as well as state and local restoration program efforts that are ongoing or proposed.

e. Watershed Scale Conservation Efforts

Through a variety of cooperative agreements between environmental groups, local interest groups, California Department of Water Resources (CDWR), California Department of Fish and Game (CDFG), school districts, Extension staff, and many concerned parties, at least 10 watershed projects and programs are under way at the local level. These programs provide a variety of benefits to steelhead including improved habitat, improved land management, erosion control, and decreased pollution. A NMFS report by Leslie-Ann Shropshire [4] provides an excellent description of these projects and their effects on steelhead.

X. Reporting, Record Keeping, and Other Compliance Requirements

This rule does not require any reporting, record keeping or other specific actions by non-federal agencies, organizations, or private individuals. Rather it is the responsibility of individuals, agencies, and organizations not to "take" endangered or threatened species, once the take prohibitions are in place. NMFS provides guidance and technical support to help state and local agencies develop incentive, regulatory, or other programs that avoid or minimize take and effectively promote restoration of the listed population. Some programs for which NMFS has found it not necessary to prohibit take involve record keeping and/or reporting to support that

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[4] Shropshire, Leslie-Ann. Characterization of Ongoing Watershed-Scale Conservation Efforts within Four Proposed Steelhead Evolutionarily Significant Units (ESU) in California. NMFS, Southwest Regional Office, Long Beach, CA, August 1997.

continuing determination. NMFS has attempted to minimize any burden associated with programs for which the take prohibitions are not enacted.

XI. Federal Rules which Duplicate, Overlap, or Conflict with Proposed Rule

The NMFS is not aware of any rules which overlap, conflict or duplicate the proposed 4(d) rule governing "take" of steelhead.

XII. Alternatives to the Rule

NMFS has carefully considered whether any legally supportable options for a 4(d) rule might have less impact on small entities. That consideration was taken in the context of NMFS' statutory obligation to promulgate whatever protective regulations are necessary and advisable to provide for the conservation of the steelhead ESUs. The "take" prohibitions, which are the backbone of this rule, essentially constitute a performance standard; the rule does not include specific, prescriptive steps that must be taken by any particular entity.

For the seven threatened steelhead ESUs, NMFS proposes to apply the take prohibitions enumerated in section 9(a)(1) of the ESA. These prohibitions would apply to all categories of activities affecting threatened steelhead in those ESUs, except with respect to specified categories of activities that contribute to conserving listed steelhead or are governed by a program that limits impacts on listed steelhead to an extent that makes additional protection through federal regulation unnecessary.

In formulating this proposed rule, NMFS considered several alternative approaches. First, The U.S. Fish and Wildlife Service (USFWS) has a "global" protective regulation for threatened species, through which § 9 take prohibitions are applied automatically to all USFWS threatened species at the time of listing, unless the USFWS opts to provide a "special rule" for a particular threatened species. NMFS has no such global protective regulation, and hence must promulgate 4(d) regulations deemed necessary and advisable for each threatened species. NMFS has considered developing a similar global protective regulation that would apply to all future threatened species listings. Having global take prohibitions in place would make it difficult for NMFS to subsequently "tailor" the prohibitions on take to better fit circumstances, and could create unnecessary burdens on small entities when and if more tailored protections would suffice to conserve the species.

Second, NMFS could issue 4(d) protective regulations with no limits, or only a few limits, on the application of the take prohibitions for relatively uncontroversial activities such as fish rescue/salvage. For example, when NMFS listed Snake River spring/summer chinook and fall chinook (57 FR 14653, 1992) and Central California Coast coho (61 FR 56149, 1996) as threatened, it concurrently applied § 9 prohibitions to those ESUs, with two exceptions. These were for actions within a § 10 permit or other exceptions of the ESA related to endangered species, and to provide a six month window for continued research while researchers sought a

§ 10 permit. This approach, again, could mean unnecessary burdens on small entities, if more limited protections would suffice to conserve the species. It would not take advantage of the opportunity to streamline ESA compliance mechanisms for acceptable activities using the 4(d) mechanism.

Third, NMFS could enact take prohibitions in combination with detailed prescriptive requirements applicable to one or more sectors of activity. For instance, to protect threatened marine turtles, NMFS has required trawlers to be outfitted with turtle excluder devices meeting detailed design parameters. Although prescriptive requirements applicable to one or more economic sectors may become necessary in the future for some or all of these ESUs, it is NMFS' judgment that at present tailored (by limiting application of the prohibitions wherever warranted) application of the take prohibitions will be adequate. The take prohibitions afford greater flexibility to entities to determine how they will avoid taking threatened steelhead, and therefore likely imposes fewer economic burdens than would a series of prescriptive requirements.

Fourth, NMFS could issue 4(d) protective regulations similar to the existing interim 4(d) protective regulations for Southern Oregon/Northern California coast coho published in July, 1997 (62 FR 38479). This regulation includes four additional limitations on the extension of the take prohibitions, for (1) harvest plans, (2) hatchery plans, (3) scientific research, and (4) habitat restoration projects, when in conformance with specified criteria. While this is a perfectly viable alternative, it would not give ESA recognition to several programs that provide sufficient protections for the listed steelhead such that Federal protections are not necessary. It would not take full advantage of the opportunity to streamline ESA compliance mechanisms for acceptable activities using the 4(d) mechanism.

Fifth, (the proposed rule approach) NMFS could issue a limited 4(d) protective regulation as in the interim rule, but with recognition of more programs and circumstances in which application of take prohibitions is not necessary and advisable. That is the approach taken in this proposed rule, which limits the take prohibitions for the seven items discussed above, but would also limit application of the take prohibitions for (1) properly screened water diversions; (2) in Oregon, for routine road maintenance by ODOT and possibly cities and counties; (3) for the integrated pest management of the Portland Parks and Recreation Department; (4) for urban density development activities, and (5) for forest management (including timber harvest) in Washington conducted in accordance with requirements of the State's Forests and Fish Report. For several of these categories (harvest, artificial propagation, habitat restoration, and urban development) the regulation is structured so that it allows plans or programs developed after promulgation of the rule to be submitted to NMFS for review under the criteria in the rule. Those programs which meet the proposed criteria would not be subject to the prohibitions on take. This approach would allow programs which are under development at the time of this rulemaking, or new programs within these categories, to be included later.

Sixth, NMFS considered an option earlier advocated by the State of Oregon and others, in which § 9 take prohibitions would not be applied to any activity addressed by the Oregon Plan for

Salmon and Watersheds, fundamentally deferring protections to the state. At present, NMFS concludes that doing so would not provide sufficient protections to the listed steelhead. In this rule NMFS proposed not applying the take prohibitions to any sector of activity for which other mechanisms currently provide adequate protection for steelhead and their habitat. NMFS will continue to actively seek to identify any additional categories of activity that are managed or regulated in a way that conserves steelhead. NMFS will give equivalent recognition to other sectors or geographic areas through appropriate Endangered Species Act mechanisms whenever the facts warrant.

Finally, NMFS considered, but rejected, the alternative of enacting no protective regulations for threatened steelhead. That course would leave the ESUs without any protection other than provided by § 7 consultations for actions with some federal nexus. By virtue of the findings upon which the decision to list the ESUs as threatened, identifying broad segments of human activity as major factors in the decline of these steelhead ESUs, NMFS could not support that approach at this time as being consistent with the obligation to enact such protective regulations as are "necessary and advisable to provide for the conservation of" the listed steelhead.

NMFS concludes that at the present time there are no legally viable alternative rules that would have less impact on small entities and still fulfill the agency's obligations to protect listed steelhead.

XIII. Economic Mitigation and Sources of Aid to Small Businesses

In addition to the EQIP, CRP, WRP, and WHIP programs, discussed above, there are many other programs including privately funded programs that small business entities could take advantage of. A very good starting point for finding out about these programs can be found at the following web site: *http://www.4sos.org/*. This the web site for "For the Sake of Salmon" Organization which provides links that provide information on watersheds and advice on watershed restoration and improving water quality. Information on grants, funding sources and an extensive list of funding programs offered by Federal and state governments and private foundations. Links to specific agencies and organizations with funding sites on the web are provided including links to Federal, tribal, state, and local government organizations.

July, 1999. Based on Regulatory Flexibility Analysis products from NMFS contract with ENTRIX, Inc. (subcontractor, Northwest Economic Associates); reviewed and compiled by NMFS' Northwest Regional Economist Steve Freese, with editing assistance from staff.

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